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BACTERIOLOGICAL INSPECTION OF MEAT

By H. Voelker

- East Germany -

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- East Germany -

[Following is the translation of an article by H. Voelker in  
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Cases of anthrax have been rare in Germany and northern European countries for decades.

Zettel and Kauber have reported lately about anthrax cases the etiology of which could not be cleared up. According to Lutje the cases of anthrax are thought to be caused by various imports of foreign raw animal meat. Pieming in Schleswig-Holstein wrote in 1958 about repeated cases of anthrax. Schoenberg is of the opinion that the classic form of anthrax is showing up only very seldom. In the summary he pointed out repeatedly that in the bacteriological inspection of meat the examination of the spleen is of special importance.

The discovery of the cases of anthrax through bacteriological inspection of meat has been reported by various authors.

Lutje emphasized that the spleen in some cases of anthrax has been hyperplastic, however "firm" otherwise, Hobigk observed that very often no "typical" changes were found during the emergency slaughtering of oxen.

Also, at the inspection of the slaughtered animals there was no suspicion of anthrax mentioned. These reports are supplemented by the following case:

The local office for Veterinary Inspection and Animal Health has received in June of this year, from an emergency slaughter house, parts of an ox for bacteriological inspection.

The following material was sent in:

Two muscle samples, two meat lymph nodules, one whole kidney, a piece of liver without lymph nodules in the size of two fists, a gall bladder, and two lymph nodules of the ilium (Lnn. ilici mediales).

The preliminary report said that the ox was emergency -- slaughtered as being paralyzed to a high degree because of panaritium.

The application for bacteriological meat inspection was marked "kidney hemorrhage". Macroscopic examination of the samples did show only the following pathological changes: the kidney showed superficial, dark red, clearly distinguishable points in the size of a millet grain which caused the kidney to look sprayed with blood. These hemorrhages could not be washed away or scraped off. Similar points could be observed also on the cutting surface of the kidney and in the region of its cortical substance. The lymph nodules of the ilium were approximately the size of a man's fist and could be easily pressed in. Their surface was of a light grey color and shiny. Medullary substance could be seen through the cutting surface. The hemorrhages were also obvious.

A microscopic inspection of a dissection, prepared from the liver and the kidney, showed numerous rods with a definite tendency to chain formation, from which anthrax could be suspected. In the direct dissection of germs from the kidney one could see capsules.

The cultural inspection on the basis of agar-agar and blood culture mediums showed also single dry colonies in the form of a head of "medusa". The material was obtained from both organs. The germs of these colonies did not show capsule formation; after two additional cultures passages, spore formation was found instead. The bacteria could also be cultivated in a nutrient broth. For the confirmation of the findings the reaction of precipitation (Thermo-Precipitation of Ascoli) was used. Again it was positive. In the experiment with animals, subcutaneous shots of the suspicious material were given to mice: they showed changes within 48 hours and their organs contained the above-mentioned anthrax-like bacteria.

There was no doubt that the diagnosis was "anthrax".

The following preliminary report could be issued afterwards: In the nearest and farthest vicinity of the place of origin of this ox, anthrax has not been found for decades. The animal came from a stock of eight oxen, pastured close to a large lake. All the animals were in good health with the exception of the above-mentioned ox, which was slaughtered on orders of a practicing veterinarian because of non-curable panaritium. At the evisceration, the gall bladder and the liver lymph nodules were carelessly thrown away and the spleen was fed to a dog.

(It could not be stated if the spleen did show pathological evidence. However, it can be taken for granted that at least it did not have any noticeable changes, otherwise the butcher would not have given it to the farm dog).

Because of the missing organs, the local meat inspector consulted the veterinarian, who ordered the available samples sent for bacteriological inspection.

This case teaches once more that sending of complete samples, in accordance with regulation in Appendix I to Paragraph 27 of the AB.A, is absolutely necessary in order to make a thorough inspection. The lack of important organs, especially the spleen, can lead to bad results.

In the described case, protective shots were needed for two veterinarians, one butcher, three employees of the institute, and for several persons of the ox owners household as all of them had handled the eviscerated parts of the animal. Since besides other samples, the spleen was also missing, the veterinarian in charge of the inspection was not in the position to make a thorough examination; also the insufficient growth of the germs during the process of inspection did not necessarily give the least symptoms of anthrax. Thus the carelessness in the slaughtering of the ox could possibly have resulted in non-discovery of this case of anthrax.

One of the Soviet rules for meat inspection, concerning the use of the precipitation method in the case of a missing spleen, would have been of great value for the diagnosis under the described circumstances. A German regulation of the FG. however, according to Appendix I to Paragraph 27 of the AB.A, is asking for a "layer sample" only in the case of "anthrax suspected" samples, and there are no essential hints in this regulation for the handling of samples in the bacteriological inspection of meat as "anthrax suspect" when the spleen is missing.